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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,945	04/22/2008	Kenneth Goransson	47113-5092-00 (227635)	2362
55694 7590 10/27/2010 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209				
EXAMINER				
YEE, DEBORAH				
ART UNIT		PAPER NUMBER		
1733				
NOTIFICATION DATE		DELIVERY MODE		
10/27/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/589,945

Applicant(s)

GORANSSON ET AL.

Examiner

Deborah Yee

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/8)
- _____ Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- _____ Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 25, 2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 to 4, 6 to 9, 12 to 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,286,442 ("Uematsu") in view of US Patent 5,426,084 ("Fukaya").

4. Uematsu in claims 1 to 4 teach a ferritic steel alloy composition having constituents whose wt% ranges overlap or closely approximate those recited by instant claims 1 to 4, 9, 12 to 14 and 17; and such overlap in wt% ranges establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed alloy wt% ranges over the broader disclosure of the prior art since prior art

teaches the same utility as present invention to make a supporting material for catalytic converter or heating device, see MPEP 2144.05.

5. Uematsu teaches an upper N limit of <0.03 which closely approximates Applicant's claimed lower N limit of "about 0.03%" such that one skilled in the art would have expected them to have the same properties in absence of evidence to the contrary (e.g. comparative test data), see MPEP 2144.05, *Titanium Metals Corp. or America v. Banner*, 778F.2d 775, 227USPQ773 (Fed.Cir. 1985). Further note the term "about" permits tolerance beyond its lower limit.

6. Uematsu does not teach a steel composition wherein Mo is partly or entirely replaced by W as recited in claims 1 and 2. Nevertheless, it is common practice in the metallurgical art to use Mo and W interchangeably as an alloy additive in analogous steel to effectively improve high temperature proof stress and durability as a carrier structure for a catalyst, see Fukaya on lines 4 to 53 of column 10. Therefore it would be a matter of choice well within the skill of the artisan to substitute Mo with W.

7. Uematsu on lines 1 to 26 of column 1 discloses steel is suitable in high temperature applications, such as a support material in catalytic converter or heating device and therefore meets meet claims 6 to 8.

8. Claims 1 to 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over European patent 0688882 ("EP'882") alone or in view of US Patent 5,426,084 ("Fukaya") or US Patent 5,286,442 ("Uematsu").

9. EP'882 in claims 1 to 3 on page 11 and examples 1 to 4 on pages 5 to 11 teach an Al-coated steel alloy made in the same manner as set forth in method claims of

present application comprising the steps of rolling, coating a steel substrate with Al or an alloy of Al and heat treating.

10. The steel substrate of EP'882 in claims 1 to 3 has a composition with constituents whose wt% ranges overlap those recited by instant claims 5, 10 and 11; and such overlap establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed alloy wt% ranges over the broader disclosure of the prior art since the prior art on lines 30 to 51 on page 3 teaches the same utility as present invention to make components for high temperature application such as in catalytic converter or furnace, see MPEP 2144.05.

11. The substrate of EP'882 is coated and heat treated with Al to make an alloy product which would suggest the resultant alloy composition recited by instant claims 1 to 4, 9 and 12 to 17 since its substrate composition and process of making closely meet the claims and in absence of evidence to the contrary.

12. EP'882 on lines 1 to 51 on page 3 discloses using coated steel in the form of wire, strip, foil and/or tube in high temperature application such as a support material in catalytic converter or heating equipment (e.g. furnace) which meets instant claims 6 to 8.

13. EP'882 does not teach steel composition wherein Mo is partly or entirely replaced by W as recited in claims 1 and 2. Nevertheless, it is common practice in the metallurgical art to use Mo and W interchangeably as an alloy additive in analogous steel to effectively improve high temperature proof stress and durability as a carrier

structure for a catalyst, see Fukaya on lines 4 to 53 of column 10. Therefore it would be a matter of choice well within the skill of the artisan to substitute Mo with W.

14. EP'822 on p.5, ll.32-37 teaches **one** or more of Ti, **Nb**, V and Zr (hereinafter referred to as "elements") in a total amount in the range of $(\%C + N) \times 0.4$ to $0.8 \text{ wt}\%$ whereby prior art upper Nb limit of 0.8% meets Applicant's claimed lower Nb limit of about 0.8% Nb. In addition the elements in steel of EP'822 are added to fix C and N to prevent C and N from hindering the diffusion of Al into steel and also to improve toughness but an amount above 0.8% degrades workability.

15. EP'822 teaches elements having an upper limit of 0.8% but it would be well within the skill of the artisan to modify steel of EP'822 by increasing elements since it is common practice to incorporate elements in amounts greater than 0.8% to promote heat resistance in analogous steel alloys for same high temperature application (e.g. catalytic converter substrate) despite a decrease in workability. This is evident in view of secondary teachings. Note Uematsu in column 4, ll. 17-32 teach adding Nb, V, and Ti in a total amount of 0.05 to 1% to bond with C and N in analogous heat resistant ferritic steel thereby significantly improving toughness in addition to improving heat resistance for a metallic carrier of a catalyst converter but is limited to 1% because hardness increases; and Fukaya in column 9, ll. 27 to column 10, ll. 2 teaches adding up $(93C/12 + 93N/14) \times 1.1$ to 3% Nb to improve high temperature properties for a metallic carrier of a catalyst converter in analogous heat resistant ferritic steel.

16. Consequently, the differences between EP'822 and present invention amount to no more than routine optimization of alloying constituents (Ti, Nb, Zr) to achieve the

desired balance of toughness, heat resistance, and hardness depending on its application which is well within the skill of the artisan and productive of no new and unexpected results.

Response to Arguments

17. Applicant's arguments filed July 16, 2010 over the rejection under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,285,442 to Fukaya et al. are persuasive and rejection has been withdrawn.

18. Applicant's arguments filed July 16, 2010 over the rejection under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,286,442 to Uematsu or European patent 0688882 to Ando et al. in view of US Patent 5,426,084 to Fukaya et al. have been fully considered but they are not persuasive.

19. Applicant argued that steel of Uematsu contains < 0.03% N and therefore teaches away from "about 0.03 to 0.2% N" set forth in claims of present application. Also Uematsu fails to explicitly disclose or provide guidance or rationale to select "about 0.8-1.2% Nb" since prior art specific examples contains Nb alone in an amount of 0.25 or 0.29%.

20. In regard to N content, it is the Examiner's position that Uematsu teaches an upper N limit of <0.03 which closely approximates Applicant's claimed lower N limit of "about 0.03%" such that one skilled in the art would have expected them to have the properties in absence of evidence to the contrary (e.g. comparative test data), see MPEP 2144.05, *Titanium Metals Corp. or America v. Banner*, 778F.2d 775,

227USPQ773 (Fed.Cir. 1985). Further note that the recited term "about" permits tolerance beyond its lower limit of 0.03%.

21. In regard to Nb, Uematsu on lines 17 to 32 in column 4 discloses the following:

Niobium, vanadium and titanium are also effective in improving heat resistance of the metallic carrier of a catalyst converter which tends to be deformed through repeated heating and cooling in heat cycles. In order to prevent the deformation, it is necessary to include **one** or two of **niobium**, vanadium and titanium in content over 0.05% by weight in total. However, if the content exceeds 1% by weight, the hardness of the stainless steel becomes too high. Thus, 0.05% to 1% of niobium, vanadium and titanium is preferably included. to 1% total can be added to steel for promoting promote heat resistance and improve toughness.

In view of disclosure, Nb can be added alone and in the range of 0.05% to 1% which overlaps Applicant's claimed range of "about 0.8-1.2% of Nb".

22. Applicant argued that steel of EP'822 contain Ti, Nb, V and Zr in limited amounts up to 0.8 wt%, see, e.g. p.5, ll.32-37. EP'882 fails to disclose an Nb content of up to 0.8 wt%, and teaches that Nb may be a portion of the combination of Ti, Nb, V and Zr which combined has a content of up to 0.8 wt% in total. Further, EP'882 provides no examples of Nb added to the alloy without at least one other element selected from Ti, V and Zr or a concentration of Nb greater than 0.07%, much less about 0.8% as recited in instant claims 1 and 5, see e.g., p 8, table 2, Therefore, EP'882 provides no guidance to select Nb alone with a concentration at the upper limit of the combined range, and thus no prima facie case of obviousness has been established.

23. In response to argument, it is the Examiner's position that EP'822 in claim 2 on page 11 teaches "a total of (%C +%N) x 4.0% to 0.8% of **one** or more elements selected from a group comprised of Ti, **Nb**, V and Zr" which indicates Nb can be added alone in an amount of 0.8 %. Consequently prior art Nb content of 0.8% would teach

Applicant's lower limit of "about 0.8% Nb". Further note, the term "about" permits tolerance beyond its lower limit.

24. Also despite the fact that EP'822 does not exemplify any specific example falling within the claimed Nb limitation, EP'822 still discloses the general steel composition containing an upper limit of 0.8% Nb which overlaps with Applicant's claimed lower limit of $\geq 0.8\%$ Nb and such overlap establishes a prima facie case of obviousness, see MPEP 2144.05.

25. Applicant further argued that secondary reference, Fukaya, teaches a low concentration of Nb in view of its examples and therefore teaches away from present invention. It is the Examiner's position that Fukaya in claim 3 still teaches a broad Nb range of (93C.12 + 93N/14) to 3.0% Nb which would overlap and teach a portion of Applicant's Nb range about 0.8 to 1.2%.

26. For the foregoing reasons, claims would not patentably distinguish over prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner
Art Unit 1733

/DY/